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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
TAYLOR, BARRY W

ART UNIT	PAPER NUMBER
2643	16

DATE MAILED: 06/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/444,723	WOODING, JEFFREY	
	Examiner	Art Unit	
	Barry W Taylor	2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 March 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emerson et al (5,553,059 hereinafter Emerson) in view of Butler et al (6,201,853 hereinafter Butler).

Regarding claims 1 and 44. Emerson teaches an apparatus for remotely measuring characteristics of a communication line (entire disclosure) comprising:

receiving means (#32, #42, #12 fig. 1) for connecting to a remote end of the communications line;

sender means (#22 figure 1) for connecting to the other end of the communications line;

the receiver means (#32, #42, #12 fig. 1) generating a signal in response to a selection of one of a plurality of characteristics of the line to be measured (Title, abstract, col. 1 lines 55-67, col. 2 lines 4-46, col. 3 lines 5-65, col. 4 lines 2-3, 21-67, col. 5 lines 1-67, col. 6 lines 2, 14-67, col. 7 lines 1-65);

the sender means having detection means (#34 figure 1) for detecting the signal, and switching means (see switching circuit for loop back and pattern generator

for the two loop back control circuitries figure 2, Title, abstract, col. 1 lines 55-67, col. 2 lines 4-46, col. 3 lines 5-65, col. 4 lines 2-3, 21-67, col. 5 lines 1-67, col. 6 lines 2, 14-67, col. 7 lines 1-65);

such that on detection of the signal, and on the basis of the unique representation of the signal, the switching means is controlled to connect predetermined circuitry across the line at the other end and at the remote end to enable a selected characteristic of the line to be measured (see switching circuit for loop back and pattern generator for the two loop back control circuitries figure 2, Title, abstract, col. 1 lines 55-67, col. 2 lines 4-46, col. 3 lines 5-65, col. 4 lines 2-3, 21-67, col. 5 lines 1-67, col. 6 lines 2, 14-67, col. 7 lines 1-65).

According to Applicants amendment and remarks on pages 14-17 wherein Applicant's contend that Emerson does not disclose connecting predetermined circuitry across the communications line at the remote end based on the selected characteristic (see Applicant's amended independent claims and general arguments starting on page 14 and continuing to page 17 of paper number 15, amendment "C", dated 3/31/03).

Butler teaches a telephone technician's remote assist apparatus connects into a telephone line to be tested by the technician from a remote location (abstract). Butler teaches using a control signal to control a remote assist apparatus that controls three test circuits (64a, 64b and 64c, figure 8, column 9 line 48 – column 18 line 11) wherein test circuit 64a selectably grounds either or both of the tip and ring terminals, test circuit 64b shorts the tip and ring terminals, and circuit 64c generates one or more tones and

outputs it/them across the tip and ring terminals. Butler further discloses that part of test circuit 64c can be used for providing a quiet termination to tip and ring terminals (col. 9 lines 56-67). Butler discloses that test circuits may be used to generate precise tones at precise decibel levels for line transmission insertion loss testing (col. 11 lines 35-63). Butler also lists specific control signals used to control the remote assist apparatus (see bottom of column 14 and continuing to the top of column 16).

Therefore, it would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the apparatus as taught by Emerson to include three test circuits as taught by Butler so that control signals may be used to switch predetermined circuitry across communication line to selectively ground tip and ring terminals or short the tip and ring terminals or generate precise tones at precise decibel levels enabling for insertion loss testing as taught by Butler.

Regarding claims 2, 30. Emerson teaches the signal is generated by signal generation means and is assigned a unique code such that the unique code is representative of a characteristic of the line to be measured (col. 1 lines 64-67, col. 2 lines 6-46, col. 3 lines 36-38, col. 3 line 66 – col. 4 line 67, col. 5 lines 1-66, col. 6 lines 27-67, col. 7 lines 1-65).

Regarding claim 3. Emerson teaches the apparatus wherein the signal assigned a unique code is represented by a sequence of pulses (col. 3 lines 53-65, col. 4 lines 6-30, col. 5 lines 17-66, columns 6-12).

Regarding claim 4. Emerson teaches the apparatus wherein on detection by the detection means of the signal, the signal is converted into a digital code (col. 3 lines 53-65, col. 4 lines 6-30, col. 5 lines 17-66, columns 6-12).

Regarding claim 5. Emerson teaches the apparatus further comprising processor means for receiving and processing the digital code representation of the signal (col. 3 lines 53-65, col. 4 lines 6-30, col. 5 lines 17-66, columns 6-12).

Regarding claim 6. Emerson teaches the apparatus wherein the switching means is controlled by the processor means to connect the predetermined circuitry on the basis of the particular code received and processed by the processor means (see switching circuit for loop back and pattern generator for the two loop back control circuitries figure 2, Title, abstract, col. 1 lines 55-67, col. 2 lines 4-46, col. 3 lines 5-65, col. 4 lines 2-3, 21-67, col. 5 lines 1-67, col. 6 lines 2, 14-67, col. 7 lines 1-65).

Regarding claims 7-8, 17-18 and 43. Emerson does not explicitly show using buttons. However, Emerson shows using the well-known command sequence to trigger a pattern generator (column 5). Emerson even provides the option of which pattern is to be generated.

Butler teaches a telephone technician's remote assist apparatus connects into a telephone line to be tested by the technician from a remote location (abstract). Butler teaches using a control signal to control a remote assist apparatus that controls three test circuits (64a, 64b and 64c, figure 8, column 9 line 48 – column 18 line 11) wherein test circuit 64a selectably grounds either or both of the tip and ring terminals, test circuit 64b shorts the tip and ring terminals, and circuit 64c generates one or more tones and

outputs it/them across the tip and ring terminals. Butler further discloses that part of test circuit 64c can be used for providing a quiet termination to tip and ring terminals (col. 9 lines 56-67). Butler discloses that test circuits may be used to generate precise tones at precise decibel levels for line transmission insertion loss testing (col. 11 lines 35-63). Butler also lists specific control signals used to control the remote assist apparatus (see bottom of column 14 and continuing to the top of column 16).

Therefore, it would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the apparatus as taught by Emerson to include three test circuits as taught by Butler so that control signals may be used to switch predetermined circuitry across communication line to selectively ground tip and ring terminals or short the tip and ring terminals or generate precise tones at precise decibel levels enabling for insertion loss testing as taught by Butler.

Regarding claim 9. Emerson does not explicitly show a low frequency signal.

Butler teaches a telephone technician's remote assist apparatus connects into a telephone line to be tested by the technician from a remote location (abstract). Butler teaches using a control signal to control a remote assist apparatus that controls three test circuits (64a, 64b and 64c, figure 8, column 9 line 48 – column 18 line 11) wherein test circuit 64a selectably grounds either or both of the tip and ring terminals, test circuit 64b shorts the tip and ring terminals, and circuit 64c generates one or more tones and outputs it/them across the tip and ring terminals. Butler further discloses that part of test circuit 64c can be used for providing a quiet termination to tip and ring terminals (col. 9 lines 56-67). Butler discloses that test circuits may be used to generate precise tones at

precise decibel levels for line transmission insertion loss testing (col. 11 lines 35-63). Butler also lists specific control signals used to control the remote assist apparatus (see bottom of column 14 and continuing to the top of column 16). Butler uses a low frequency tone as control signal indicating that Toggle Tracing Tone on (column 14 line 60).

Therefore, it would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the apparatus as taught by Emerson to include three test circuits as taught by Butler so that control signals may be used to switch predetermined circuitry across communication line to selectively ground tip and ring terminals or short the tip and ring terminals or generate precise tones at precise decibel levels enabling for insertion loss testing as taught by Butler.

Method claims 10-16 are rejected for the same reasons as apparatus claims 1-6 since the recited elements would perform the claimed steps.

Method claims 19-23 and 36 are rejected for the same reason as apparatus claims 24-28 and 37 since the recited apparatus would perform the claimed steps.

Regarding claim 24. Emerson teaches an apparatus testing a communications line so as to ascertain and measure a plurality of characteristics of the line, the apparatus comprising:

receiving means (#32, #42, #12 fig. 1) for connecting to a remote end of the communications line;

sender means (#22 figure 1) for connecting to the other end of the communications line;

the receiver means (#32, #42, #12 fig. 1) generating a signal in response to a selection of one of a plurality of characteristics of the line to be measured (Title, abstract, col. 1 lines 55-67, col. 2 lines 4-46, col. 3 lines 5-65, col. 4 lines 2-3, 21-67, col. 5 lines 1-67, col. 6 lines 2, 14-67, col. 7 lines 1-65);

the sender means having detection means (#34 figure 1) for detecting the signal, and switching means (see switching circuit for loop back and pattern generator for the two loop back control circuitries figure 2, Title, abstract, col. 1 lines 55-67, col. 2 lines 4-46, col. 3 lines 5-65, col. 4 lines 2-3, 21-67, col. 5 lines 1-67, col. 6 lines 2, 14-67, col. 7 lines 1-65);

the signal uniquely representation the selected characteristic ... (see switching circuit for loop back and pattern generator for the two loop back control circuitries figure 2, Title, abstract, col. 1 lines 55-67, col. 2 lines 4-46, col. 3 lines 5-65, col. 4 lines 2-3, 21-67, col. 5 lines 1-67, col. 6 lines 2, 14-67, col. 7 lines 1-65).

detection means for detecting signal (Title, abstract, col. 1 lines 55-67, col. 2 lines 4-46, col. 3 lines 5-65, col. 4 lines 2-3, 21-67, col. 5 lines 1-67, col. 6 lines 2, 14-67, col. 7 lines 1-65);

switching means for connecting the predetermined circuitry ...(Title, abstract, col. 1 lines 55-67, col. 2 lines 4-46, col. 3 lines 5-65, col. 4 lines 2-3, 21-67, col. 5 lines 1-67, col. 6 lines 2, 14-67, col. 7 lines 1-65).

Emerson does not explicitly show using buttons. However, Emerson shows using the well-known command sequence to trigger a pattern generator (column 5). Emerson even provides the option of which pattern is to be generated.

Butler teaches a telephone technician's remote assist apparatus connects into a telephone line to be tested by the technician from a remote location (abstract). Butler teaches using a control signal to control a remote assist apparatus that controls three test circuits (64a, 64b and 64c, figure 8, column 9 line 48 – column 18 line 11) wherein test circuit 64a selectably grounds either or both of the tip and ring terminals, test circuit 64b shorts the tip and ring terminals, and circuit 64c generates one or more tones and outputs it/them across the tip and ring terminals. Butler further discloses that part of test circuit 64c can be used for providing a quiet termination to tip and ring terminals (col. 9 lines 56-67). Butler discloses that test circuits may be used to generate precise tones at precise decibel levels for line transmission insertion loss testing (col. 11 lines 35-63). Butler also lists specific control signals used to control the remote assist apparatus (see bottom of column 14 and continuing to the top of column 16).

Therefore, it would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the apparatus as taught by Emerson to include three test circuits as taught by Butler so that control signals may be used to switch predetermined circuitry across communication line to selectively ground tip and ring terminals or short the tip and ring terminals or generate precise tones at precise decibel levels enabling for insertion loss testing as taught by Butler.

Regarding claim 25. Emerson teaches the signal is generated by signal generation means and is assigned a unique code such that the unique code is representative of a characteristic of the line to be measured (col. 1 lines 64-67, col. 2

lines 6-46, col. 3 lines 36-38, col. 3 line 66 – col. 4 line 67, col. 5 lines 1-66, col. 6 lines 27-67, col. 7 lines 1-65).

Regarding claim 26. Emerson teaches the apparatus wherein the signal assigned a unique code is represented by a sequence of pulses (col. 3 lines 53-65, col. 4 lines 6-30, col. 5 lines 17-66, columns 6-12).

Regarding claim 27. Emerson teaches the apparatus further comprising processor means for receiving and processing the digital code representation of the signal (col. 3 lines 53-65, col. 4 lines 6-30, col. 5 lines 17-66, columns 6-12). Emerson teaches the apparatus wherein the switching means is controlled by the processor means to connect the predetermined circuitry on the basis of the particular code received and processed by the processor means (see switching circuit for loop back and pattern generator for the two loop back control circuitries figure 2, Title, abstract, col. 1 lines 55-67, col. 2 lines 4-46, col. 3 lines 5-65, col. 4 lines 2-3, 21-67, col. 5 lines 1-67, col. 6 lines 2, 14-67, col. 7 lines 1-65).

Regarding claim 28. Emerson does not explicitly show using buttons. However, Emerson shows using the well-known command sequence to trigger a pattern generator (column 5). Emerson even provides the option of which pattern is to be generated.

Butler teaches a telephone technician's remote assist apparatus connects into a telephone line to be tested by the technician from a remote location (abstract). Butler teaches using a control signal to control a remote assist apparatus that controls three test circuits (64a, 64b and 64c, figure 8, column 9 line 48 – column 18 line 11) wherein test circuit 64a selectably grounds either or both of the tip and ring terminals, test circuit

64b shorts the tip and ring terminals, and circuit 64c generates one or more tones and outputs it/them across the tip and ring terminals. Butler further discloses that part of test circuit 64c can be used for providing a quiet termination to tip and ring terminals (col. 9 lines 56-67). Butler discloses that test circuits may be used to generate precise tones at precise decibel levels for line transmission insertion loss testing (col. 11 lines 35-63). Butler also lists specific control signals used to control the remote assist apparatus (see bottom of column 14 and continuing to the top of column 16).

Therefore, it would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the apparatus as taught by Emerson to include three test circuits as taught by Butler so that control signals may be used to switch predetermined circuitry across communication line to selectively ground tip and ring terminals or short the tip and ring terminals or generate precise tones at precise decibel levels enabling for insertion loss testing as taught by Butler.

Regarding claim 29. Emerson teaches an apparatus for remotely measuring characteristics of a communication line (entire disclosure) comprising:

receiving means (#32, #42, #12 fig. 1) for connecting to a remote end of the communications line;

sender means (#22 figure 1) for connecting to the other end of the communications line;

the receiver means (#32, #42, #12 fig. 1) generating a signal in response to a selection of one of a plurality of characteristics of the line to be measured (Title,

abstract, col. 1 lines 55-67, col. 2 lines 4-46, col. 3 lines 5-65, col. 4 lines 2-3, 21-67, col. 5 lines 1-67, col. 6 lines 2, 14-67, col. 7 lines 1-65);

the sender means having detection means (#34 figure 1) for detecting the signal, and switching means (see switching circuit for loop back and pattern generator for the two loop back control circuitries figure 2, Title, abstract, col. 1 lines 55-67, col. 2 lines 4-46, col. 3 lines 5-65, col. 4 lines 2-3, 21-67, col. 5 lines 1-67, col. 6 lines 2, 14-67, col. 7 lines 1-65);

such that on detection of the signal, and on the basis of the unique representation of the signal, the switching means is controlled to connect at least one of the measurement-related circuits across the line at the other end and at the remote end to enable a selected characteristic of the line to be measured (see switching circuit for loop back and pattern generator for the two loop back control circuitries figure 2, Title, abstract, col. 1 lines 55-67, col. 2 lines 4-46, col. 3 lines 5-65, col. 4 lines 2-3, 21-67, col. 5 lines 1-67, col. 6 lines 2, 14-67, col. 7 lines 1-65).

According to Applicants amendment and remarks on pages 14-17 wherein Applicant's contend that Emerson does not disclose connecting predetermined circuitry across the communications line at the remote end based on the selected characteristic (see Applicant's amended independent claims and general arguments starting on page 14 and continuing to page 17 of paper number 15, amendment "C", dated 3/31/03).

Butler teaches a telephone technician's remote assist apparatus connects into a telephone line to be tested by the technician from a remote location (abstract). Butler teaches using a control signal to control a remote assist apparatus that controls three

test circuits (64a, 64b and 64c, figure 8, column 9 line 48 – column 18 line 11) wherein test circuit 64a selectably grounds either or both of the tip and ring terminals, test circuit 64b shorts the tip and ring terminals, and circuit 64c generates one or more tones and outputs it/them across the tip and ring terminals. Butler further discloses that part of test circuit 64c can be used for providing a quiet termination to tip and ring terminals (col. 9 lines 56-67). Butler discloses that test circuits may be used to generate precise tones at precise decibel levels for line transmission insertion loss testing (col. 11 lines 35-63). Butler also lists specific control signals used to control the remote assist apparatus (see bottom of column 14 and continuing to the top of column 16).

Therefore, it would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the apparatus as taught by Emerson to include three test circuits as taught by Butler so that control signals may be used to switch predetermined circuitry across communication line to selectively ground tip and ring terminals or short the tip and ring terminals or generate precise tones at precise decibel levels enabling for insertion loss testing as taught by Butler.

Regarding claim 31. Emerson does not explicitly show relays.

Butler teaches a telephone technician's remote assist apparatus connects into a telephone line to be tested by the technician from a remote location (abstract). Butler teaches using a control signal to control a remote assist apparatus that controls three test circuits (64a, 64b and 64c, figure 8, column 9 line 48 – column 18 line 11) wherein test circuit 64a selectably grounds either or both of the tip and ring terminals, test circuit 64b shorts the tip and ring terminals, and circuit 64c generates one or more tones and

outputs it/them across the tip and ring terminals. Butler further discloses that part of test circuit 64c can be used for providing a quiet termination to tip and ring terminals (col. 9 lines 56-67). Butler discloses that test circuits may be used to generate precise tones at precise decibel levels for line transmission insertion loss testing (col. 11 lines 35-63). Butler also lists specific control signals used to control the remote assist apparatus (see bottom of column 14 and continuing to the top of column 16).

Therefore, it would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the apparatus as taught by Emerson to include three test circuits as taught by Butler so that control signals may be used to switch predetermined circuitry across communication line to selectively ground tip and ring terminals or short the tip and ring terminals or generate precise tones at precise decibel levels enabling for insertion loss testing as taught by Butler.

Regarding claims 32-33. Emerson discloses the capability to determine transmission problems on the telephone line but does not explicitly describe line loss.

Butler teaches a telephone technician's remote assist apparatus connects into a telephone line to be tested by the technician from a remote location (abstract). Butler teaches using a control signal to control a remote assist apparatus that controls three test circuits (64a, 64b and 64c, figure 8, column 9 line 48 – column 18 line 11) wherein test circuit 64a selectably grounds either or both of the tip and ring terminals, test circuit 64b shorts the tip and ring terminals, and circuit 64c generates one or more tones and outputs it/them across the tip and ring terminals. Butler further discloses that part of test circuit 64c can be used for providing a quiet termination to tip and ring terminals (col. 9

lines 56-67). Butler discloses that test circuits may be used to generate precise tones at precise decibel levels for line transmission insertion loss testing (col. 11 lines 35-63). Butler also lists specific control signals used to control the remote assist apparatus (see bottom of column 14 and continuing to the top of column 16).

Therefore, it would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the apparatus as taught by Emerson to include three test circuits as taught by Butler so that control signals may be used to switch predetermined circuitry across communication line to generate precise tones at precise decibel levels enabling for insertion loss testing as taught by Butler.

Regarding claims 34-35. Emerson discloses the capability to determine transmission problems on the telephone line but does not explicitly use the term "line pair" when determining line loss.

Butler teaches a telephone technician's remote assist apparatus connects into a telephone line to be tested by the technician from a remote location (abstract). Butler teaches using a control signal to control a remote assist apparatus that controls three test circuits (64a, 64b and 64c, figure 8, column 9 line 48 – column 18 line 11) wherein test circuit 64a selectably grounds either or both of the tip and ring terminals, test circuit 64b shorts the tip and ring terminals, and circuit 64c generates one or more tones and outputs it/them across the tip and ring terminals. Butler further discloses that part of test circuit 64c can be used for providing a quiet termination to tip and ring terminals (col. 9 lines 56-67). Butler discloses that test circuits may be used to generate precise tones at precise decibel levels for line transmission insertion loss testing (col. 11 lines 35-63).

Butler also lists specific control signals used to control the remote assist apparatus (see bottom of column 14 and continuing to the top of column 16).

Therefore, it would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the apparatus as taught by Emerson to include three test circuits as taught by Butler so that control signals may be used to switch predetermined circuitry across communication line to generate precise tones at precise decibel levels enabling for insertion loss testing as taught by Butler.

Regarding claim 37. Emerson does not disclose switching predetermined circuitry across a communication line on the basis of a signal representing a characteristic selected for measurement.

Butler teaches a telephone technician's remote assist apparatus connects into a telephone line to be tested by the technician from a remote location (abstract). Butler teaches using a control signal to control a remote assist apparatus that controls three test circuits (64a, 64b and 64c, figure 8, column 9 line 48 – column 18 line 11) wherein test circuit 64a selectably grounds either or both of the tip and ring terminals, test circuit 64b shorts the tip and ring terminals, and circuit 64c generates one or more tones and outputs it/them across the tip and ring terminals. Butler further discloses that part of test circuit 64c can be used for providing a quiet termination to tip and ring terminals (col. 9 lines 56-67). Butler discloses that test circuits may be used to generate precise tones at precise decibel levels for line transmission insertion loss testing (col. 11 lines 35-63). Butler also lists specific control signals used to control the remote assist apparatus (see bottom of column 14 and continuing to the top of column 16).

Therefore, it would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the apparatus as taught by Emerson to include three test circuits as taught by Butler so that control signals may be used to switch predetermined circuitry across communication line to selectively ground tip and ring terminals or short the tip and ring terminals or generate precise tones at precise decibel levels enabling for insertion loss testing as taught by Butler.

Regarding claim 38. Emerson does not explicitly show a single line pair and the measurement-related circuits are connected between the two lines of the single line pair.

Butler teaches a telephone technician's remote assist apparatus connects into a telephone line to be tested by the technician from a remote location (abstract). Butler teaches using a control signal to control a remote assist apparatus that controls three test circuits (64a, 64b and 64c, figure 8, column 9 line 48 – column 18 line 11) wherein test circuit 64a selectably grounds either or both of the tip and ring terminals, test circuit 64b shorts the tip and ring terminals, and circuit 64c generates one or more tones and outputs it/them across the tip and ring terminals. Butler further discloses that part of test circuit 64c can be used for providing a quiet termination to tip and ring terminals (col. 9 lines 56-67). Butler discloses that test circuits may be used to generate precise tones at precise decibel levels for line transmission insertion loss testing (col. 11 lines 35-63). Butler also lists specific control signals used to control the remote assist apparatus (see bottom of column 14 and continuing to the top of column 16).

Therefore, it would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the apparatus as taught by Emerson to include three test circuits as taught by Butler so that control signals may be used to switch predetermined circuitry across communication line to selectively ground tip and ring terminals or short the tip and ring terminals or generate precise tones at precise decibel levels enabling for insertion loss testing as taught by Butler.

Regarding claim 39. Emerson discloses the capability to determine transmission problems on the telephone line but does not explicitly describe using numeric value.

Butler teaches a telephone technician's remote assist apparatus connects into a telephone line to be tested by the technician from a remote location (abstract). Butler teaches using a control signal to control a remote assist apparatus that controls three test circuits (64a, 64b and 64c, figure 8, column 9 line 48 – column 18 line 11) wherein test circuit 64a selectably grounds either or both of the tip and ring terminals, test circuit 64b shorts the tip and ring terminals, and circuit 64c generates one or more tones and outputs it/them across the tip and ring terminals. Butler further discloses that part of test circuit 64c can be used for providing a quiet termination to tip and ring terminals (col. 9 lines 56-67). Butler discloses that test circuits may be used to generate precise tones at precise decibel levels for line transmission insertion loss testing (col. 11 lines 35-63). Butler also lists specific control signals used to control the remote assist apparatus (see bottom of column 14 and continuing to the top of column 16).

Therefore, it would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the apparatus as taught by Emerson to

include three test circuits as taught by Butler so that control signals may be used to switch predetermined circuitry across communication line to generate precise tones at precise decibel levels enabling for insertion loss testing as taught by Butler.

Regarding claims 40-41. Emerson teaches loop back testing which inherently and/or obviously requires impedance matching.

Butler teaches using isolating circuitry for isolating the subscriber side and central office side (column 4 lines 22-33).

Regarding claim 42. Emerson shows using a oscillator (see bit patterns oscillating between different one's and zero's columns 4-6).

Response to Arguments

2. Applicant's arguments with respect to claims 1-44 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry W Taylor whose telephone number is (703) 305-4811. The examiner can normally be reached on Monday-Friday from 6:30am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (703) 305-4708. The fax phone number for this Group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Technology Center 2600 customer service Office whose telephone number is (703) 306-0377.

CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600